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The changes in the composition of Cladocera community in bottom sediments of Lake Maloye Shibrozero (Zaonezhsky Peninsula) as a consequence of shifts of environmental and climatic conditions

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Abstract

© Published under licence by IOP Publishing Ltd. The study aims to explore the evolution of lakes of the boreal zone during the late- and postglacial time on the south-eastern periphery of the Fennoscandian crystalline shield since the last deglaciation. In order to reconstruct the past for virgin territories of the Zaonezhsky Peninsula current investigation on bottom sediments of Lake Maloye Shibrozero was conducted. Analyzes were performed using the new paleoindicator - subfossil remains of Cladocera (Cladocera, Branchiopoda). The 28 samples of bottom sediments were analyzed. It has been determined that discovered Cladocera remains belong to representatives of 6 families and 38 taxa. Species inhabiting Palaearctic zone are predominant in lake deposits; most of the identified subfossil remains are related to the pelagic species inhabiting the open part of the lake. According to the Lubarsky scale the dominant of Cladocera community is Bosmina (Eubosmina) cf. longispina. Secondary taxa are Chydorus sphaericus, Bosmina coregoni, Alonella nana, Alona guadrangularis, A. affinis, Chydorus gibbus. At a depth of 650-653 cm, a partial replacement of Bosmina (Eubosmina) cf. longispina by Bosmina coregoni takes place with a simultaneous increase in the significance of Chydorus sphaericus, which is used to be an indicator of eutrophication and increasing trophic status of the reservoir. Changes in Cladocera community could be attributed to decreasing the level of periglacial lake, as a result of which the Lake Maloye Shibrozero became a small isolated lake with the trend to trophic status increasing. Cold-water species were replaced by thermophilic ones with a further return to a cold-water fauna. In the upper layers of the column an increase of the number of phytophilous species is noted.

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